

# Assistive Technology - What Do I Need?



[www.ncvital.info](http://www.ncvital.info)

**North Carolina Vocational Instructors Training in Accessible Learning**

**Funded by the Carl D. Perkins Vocational & Technical Education Act of 1998**

## Table of Contents

<b>Introduction</b>	<b>3</b>
<b>Equipment Tracking and Maintenance</b>	<b>4</b>
<b>Alternate Input Devices</b>	<b>7</b>
<b>Audio Devices</b>	<b>13</b>
<b>Book Scanning</b>	<b>17</b>
<b>Note taking devices</b>	<b>22</b>
<b>Screen/Text readers</b>	<b>23</b>
<b>TTY and Relay Services</b>	<b>31</b>
<b>Visual Devices and Software</b>	<b>32</b>
<b>Miscellaneous</b>	<b>34</b>
<b>Notes</b>	<b>42</b>

## Introduction

What is the purpose of this manual? Well, consider a person trying to quickly teach someone to use a word processor (such as Word). Teaching every detail about the word processor would be impractical since most people only use 20% of the functionality of software 80% of the time. If those people were taught that 20%, they could probably make adequate use of the software and greatly reduce the teaching time. So, why not teach them the 20%? That is what this manual aims to do; to provide a “quick start guide” for people new to **assistive technology (AT)** based on those technologies most often used at Catawba Valley Community College.

“Quick start guides” don’t provide every detail about their associated products and neither does this manual. Most AT categories are described in general with at least one product listed as an example (with price, if available, and a web link for more details). Some of the more complex products have some detailed instructions on their use while simpler products do not. (These products come with short manuals and are usually easy to understand.) Information beyond the scope of this manual may be found by performing a web search on the topic using an Internet search engine such as [www.google.com](http://www.google.com) or [www.yahoo.com](http://www.yahoo.com).

This manual attempts to incorporate the concept of Universal Design: AT that is helpful to almost everyone. (Think of the person opening a door using the button beside it while carrying an arm-load of boxes.) One example in this manual is the “**Keyboard shortcuts and mouse methods**” section which covers techniques for faster and easier computer usage; something all keyboard users may benefit from.

This manual is intended to grow and evolve based partly on the feedback from those who read it. Please feel free to e-mail corrections, suggestions, useful web links, etc. to the AT co-ordinator at Catawba Valley Community College. (Contact information is available on the NC-VITAL web site:

<http://www.ncvital.info/help.htm>. The main web site is at <http://www.ncvital.info/>.)

# Equipment Tracking and Maintenance

## Inventory

Equipment should be stored in a lockable cage, cabinet or room that only has access by authorized personnel. New equipment should be checked for proper operation when it is received to avoid discovering “bad out of the box” equipment after its warranty has expired. The tracking of this equipment can be handled with a simple check-in, check-out sheet, but using a spreadsheet or database on a computer is better.

When signing out equipment, a form should be used that includes the student's name, Social Security number or student ID, and a list of equipment being issued, including all components of the equipment (AC adapters, headphones, etc.). The form should have an explanation of the student’s responsibilities for the equipment and what will happen if the equipment is not returned in working condition (a hold on the student's grades and registration, fees, etc.). There should be an area for the home and/or work phone number of the student, and a signature line, including a space for the sign out date. The due date should also be included on the form.

Returned equipment should be checked for proper operation before being returned to stock and before being issued. Since batteries could leak and damage the equipment, it is recommended that batteries be removed from equipment prior to storage. Stock new batteries to be issued with checked out equipment.

## Tools

A few simple items can go a long way towards helping maintain assistive technology equipment. Malfunctioning equipment can sometimes be fixed using these simple items and thus avoiding the need to return the equipment to the manufacturer for repair.

**\*\* SAFETY WARNING:** Some devices operate using potentially dangerous voltages. Only qualified individuals should attempt to troubleshoot these devices. These devices usually have warnings on their cases.

**\*\* WARNING:** opening the case of equipment that is still under warranty usually voids the warranty. Check the equipment’s warranty to see if access to the inside of the unit is allowed without voiding the warranty.

**Canned air** - Canned air is useful for blowing dust and dirt out of the nooks and crannies of equipment, such as keyboards and PC cases.

<http://www.officedepot.com/>

or

<http://www.officemax.com/> (Search for “canned air”.)

**Flashlight** - Useful for lighting dark equipment interiors and makes a “quick and dirty” battery tester. (The batteries to be tested must fit the flashlight.)

**Battery tester** - Battery testers can be found at your local electronics stores usually for less than \$15.

<http://www.radioshack.com/product/index.jsp?productId=2103166>

**Digital Multi-meter (DMM) (\$29.99)** - A DMM can be used to measure voltages of batteries and of AC power adapters. This can help determine whether or not a piece of equipment is bad or if it just has dead batteries or a bad AC adapter.

<http://www.radioshack.com/product/index.jsp?productId=2103176>

**Tape measure** - A tape measure can come in handy for measuring the future location of a piece of equipment or furniture or for measuring the length of cables needed to connect equipment.

**Case cutter, pocket knife or Xacto knife** - Any of these are useful for opening shipping boxes, the boxes of new equipment or cutting the spines off of books to be scanned.

**Basic toolkit (with jeweler's screwdrivers)** - Regular screwdrivers and pliers come in handy when adjusting tables and other equipment. The small jeweler's screwdrivers may be needed to remove the small screws that hold on small battery covers.

**Duct tape** - Good for TEMPORARY emergency repairs.

**Electrical Tape** - This can be used for covering torn insulation on wires.

**Velcro wrap strips** and/or **Plastic Wire ties** - These are useful for bundling cables and cords running between PCs and connected equipment. (The Velcro strips can be removed and reused.) These may also be used to steady unstable equipment.

**Bricks, books and 2 x 4's** - These can be used to level or raise equipment and furniture.

**Spray bottle of water and a lint-less cloth** - Can be use to clean screens on computer monitors and equipment.

**\*Caution:** Do not spray water or any liquids directly on the device. Liquids may seep into seams of the device and damage it. Instead, spray the cloth then wipe down the equipment.

**\*Caution:** Check the manufacturer's cleaning recommendations before using ammonia-based cleaners as they may damage the anti-glare coatings on screens.

## Alternate Input Devices

Many alternate input devices exist for people with motor control issues. Some devices make use of limited manual dexterity while other devices are completely hands-off.

---

### Standard Keyboard using Windows Accessibility Tools

Microsoft Windows has several built-in features that may benefit the user who has difficulty using a mouse and/or standard keyboard with default settings:

**Filter keys** – May be used to slow the repeat rate of the keyboard or make Windows ignore repeated or brief key presses. This should allow users with unsteady hands to type more accurately. Default shortcut: Hold the **Shift** key for more than 8 seconds. This will bring up the **Filter keys** dialog box. Clicking **Settings** will access the **Accessibility Options**. Here **Filter keys** and the rest of the keyboard related options can be configured.)

**Sticky keys** – Allows user to use the **Shift**, **Alt** and **Ctrl** keys one at a time. By default the user would press the desired key twice to lock the key. Default shortcut: press the **Shift** key 5 times.

**Toggle keys** – Allows the user to hear a tone when the **Caps Lock**, **Num Lock**, or the **Scroll Lock** keys are pressed. Default shortcut: Hold the **Num Lock** key for 5 seconds.

**Mouse keys** – Allows the user to control the mouse pointer using the numeric keypad on the keyboard. Default shortcut: **Left Alt** + **Left Shift** + **Num Lock** keys.

\*\* See <http://www.microsoft.com/enable/products/windowsxp/default.aspx> for more details.

---

### On-screen Keyboard (included with Windows)

This feature allows a user to “type” by using the mouse pointer to click on the keys of a keyboard displayed on the screen. Activate by clicking **Start -> Programs -> Accessories -> Accessibility -> On-screen Keyboard**.

---

## **Half QWERTY Keyboards**

Two-handed touch typing involves using a left-hand type the left half of the keys and the right hand to type the right half of the keys on the standard keyboard. **Half QWERTY keyboards** allow a typist to type 1-handed on one half of the keyboard. When keys on the other half of the keyboard are needed the space key is held down, effectively transposing the left and right sides of the keyboard. For example: the F key is typed with the left index finger and would be typed by the index finger of the right hand if the space bar were held down. Many users report that they are able to type at a useable speed after only 10 minutes of practice.

Half-QWERTY Keyboard (\$595)

Matias

<http://half-qwerty.com/>

---

## **Big Key Keyboard**

These keyboards have oversized keys to allow users with larger fingers or unsteady hands to hit one key at a time.

Big Keys LX Keyboard (MSRP \$159)

<http://www.enablemart.com/productdetail.aspx?store=10&pid=179&dept=78>

---

## **Chording Keyboard**

These keyboards allow on-handed typing and typically have seven keys; three keys operated by the thumb and the other four by the other fingers. Standard key presses are done by pressing one or more keys (chords) on the chording keyboard. They are available in left and right-handed versions.

BAT Chording Keyboard (MSRP \$229.00 )

Infogrip

[http://www.infogrip.com/product\\_view.asp?RecordNumber=12](http://www.infogrip.com/product_view.asp?RecordNumber=12)

---

## **Key Guard**

A key guard is a flat, plastic panel that has square key holes and fits over a keyboard. The guard acts as a guide for fingers or pointer sticks so that keys may be pressed one-at-a-time.

Viziflex Keyguard (MSRP \$134.00 )

Viziflex <http://www.viziflex.com/shopdisplayproducts.asp?id=40&cat=Keyguards>

---

## **Trackball**

The trackball is works like a ball type mouse that has been flipped on its back. The base of the trackball does not move allowing people with control of their fingers but limited control of their arms to control the mouse pointer on a computer by rolling the ball. Trackballs are available in different sizes.

Trackballs (\$19.95 - \$59.95)

Logitech <http://www.logitech.com/index.cfm/products/productlist/US/EN,crid=2141>

---

## **Vertical Mouse**

While a standard mouse is used with the hand positioned horizontally, a vertical mouse is operated with the hand oriented in a vertical position. This type of mouse would be suited for a user without the ability to rotate their hand to a horizontal position.

Virtually Hands Free Mousing System (MSRP \$149.95)

<http://www.maxiaids.com> Search for Item#: 807787

---

## **Joystick Mouse**

This device is similar to the joysticks found on video games and is used in place of a mouse. It is useful to people with limited lower arm movement.

Joystick Mouse (MSRP \$295.00)

Infogrip <http://www.infogrip.com> Search for “Roller II Joystick”

---

## **Stylus (Tablet PC)**

A stylus on tablet PC can be used as an alternative to the mouse and keyboard. Tablet PCs are laptop computers with screens that can sense the position of a special stylus allowing the user to control the mouse pointer with the stylus. For users without the dexterity to use a keyboard or mouse but with enough control to grip a stylus this alternate input device will allow them to use a PC. The user holds the stylus like a pen or pencil and moves it across the tablet PC's screen to move the mouse pointer. Clicking is done by a single tap of the stylus while a double-clicking by double tapping. Right-clicking may be done by a tap-and hold to bring up the right-click menu. The tablet version of Windows allows Tablet PCs to recognize text that has been hand printed on the screen by the stylus.

---

## **Infrared Head Mouse**

Users who are unable to use a mouse may use a computer through the use of a head mouse. This device allows user to control a PC's mouse pointer by moving a reflective dot, usually worn on the forehead, a pair of glasses, a hat or a headband. The head mouse bounces infrared light off of the dot and reads the position of the reflected light using the head mouse's built in camera. Mouse movements correspond to the user's head movements. Mouse key clicks may be performed by a sip and puff device, alternate switch, or by holding the mouse pointer positioned on a clickable item on the computer screen.

TrackIR (\$129)

NaturalPoint

<http://www.naturalpoint.com/trackir/02-products/product-TrackIR-3-PRO.html>

Smart-NAV 3 Standard (\$199)

NaturalPoint

<http://www.naturalpoint.com/smarnav/>

HeadMouse Extreme (about \$975)

Origin Instruments Corporation

<http://orin.com/access/headmouse/index.htm>

---

## Microphone and Speech-to-Text Software

**Speech-to-Text Software** allows users to speak into a microphone attached to a PC and have their speech converted into text. This is useful for people with reading or learning disabilities or limited manual dexterity. With this software the user can:

- Create a document
- Edit text and
- Issue commands.

The user must first go through a 20-minute training session in which the user reads selected text to the **Speech-to-Text Software**. This training allows the software to adjust to the user's speech patterns and accent. Additional training may be required if the software's accuracy needs to be improved.

Several things affect the accuracy of the software: microphone quality, microphone positioning, speech pattern and ambient noise. A high quality microphone ensures that an undistorted sound signal gets to the software. (Noise-cancellation microphones are even better.) The microphone should be positioned below or beside the mouth away from the main flow of air from the mouth to prevent the hiss of air against the microphone. The user should speak in a normal, flowing voice. Speaking in a broken, start/stop pattern prevents the software from properly adapting to the user's voice. Finally, training should occur in the environment that the software will be used in. This allows the software to adapt to and ignore the environment's ambient noise.

Speech Recognition Tool (included in later versions of Windows)

Microsoft

Install and configure:

<http://support.microsoft.com/default.aspx?scid=kb;en-us;Q306537>

Dragon Naturally Speaking Standard (MSRP \$99.99)

Dragon Naturally Speaking Preferred (MSRP \$199.99)

Nuance

<http://www.nuance.com/naturallyspeaking/>

Dragon Naturally Speaking 8 Video Guide (\$149.95)

Solutions for Humans

<http://www.sforh.com/speech/dragon-guide.html>

Via Voice Personal Edition (MSRP \$29.99)  
Via Voice Standard Edition (MSRP \$49.99)  
Via Voice Advanced Edition (MSRP \$79.99)  
Via Voice Pro USB Edition (MSRP \$189.99)

IBM

<http://www.nuance.com/viavoice/>

Feature Matrix

<http://www.nuance.com/viavoice/matrix/>

Microphone (MSRP \$19.95 - \$119.95)

Plantronics

[http://www.plantronics.com/north\\_america/en\\_US/products/cat640035/cat1430032](http://www.plantronics.com/north_america/en_US/products/cat640035/cat1430032)

## Audio Devices

Audio devices include **recorders**, **players** and various **amplification devices**. **Recorders** allow the capturing of conversations, such as lectures, for future playback. (**Recorders** are useful to students who may need to hear things more than once to grasp their meaning.) **Players** are used for playing audio books or other recordings. (**Players** are useful to students with learning or reading disabilities or who are visually impaired.) **Amplification devices** pick up sounds with a microphone and boost the volume of these sounds before sending them to an earpiece. (**Amplification devices** are useful to students who are hard of hearing or who have Attention Deficit Disorder.) All of these devices are usually portable and can be powered by batteries (usually AA or AAA) or, sometimes, an AC adapter.

---

### Recorders/Players

#### **Micro-cassette recorder**

Micro-cassette recorders are small handheld devices that use small magnetic tapes, known as micro cassettes, to record sound. These devices are convenient and unobtrusive. They have standard controls (play, record, pause, fast-forward and rewind) and usually have a speed switch that allows the unit to record at half the normal speed thus allowing it to record twice as long on tapes as it normally would.

#### **Digital recorders**

Digital recorders perform the same function as micro cassette recorders and have similar controls. The main difference between Digital and micro- cassette recorders is that digital recorders store the recordings in solid-state memory instead of on magnetic tapes. Some digital recorders allow for the creation of file folders which allows the user to organize numerous separate recordings. Some digital recorders allow the user to transfer the audio files to a PC using a USB cable. Once connected, the PC sees the recorder as a flash drive. (See section on “Using a Flash Drive”.)

## **Four-track Cassette Players**

Four track cassette players are generally used to play back special four-track audiotapes from **RFB&D** (Reading for the Blind and Dyslexic\*\*) and can also be used to record. These players are the same standard cassette players except that they have the capability of playing single tracks off of a cassette instead of playing two at a time (stereo) and they can play the tapes at half speed. Four track players usually have two switches; one to select the track the other to select the speed.

\*\* **Reading for the Blind and Dyslexic** is an organization that provides books in audio format to its subscribers. It should be noted that **RFB&D** is in the process of going completely digital with all of its audio books and will be phasing out audio cassettes by June 2007. They will no longer offer cassette players or analog cassette tape installments beginning June 2006.

## **MP3 players**

MP3 players are similar to the digital recorders in that the sound they play is stored in digital format. These players are useful for playing back audio books that have been converted into MP3 format and can usually be plugged into a PC with a USB cable to allow the transfer of files to and from the unit. Some players allow the creation of folders on the device to help organize stored audio files. Some MP3 players can also record.

## **DAISY compatible CD players**

These players can play standard audio CDs and DAISY format CDs. DAISY CDs are audio book CDs that can be navigated not just by chapter but by page and by unit. Unlike audio books on tape where the user must search through the tape in sequential fashion, the DAISY player allows users to jump to a particular page or to may save their current location in the audio book by creating a bookmark. This allows users to pick up where they left off at a later time.

Telex Scholar (MSRP \$249.00)

Telex Communications

[http://www.telex.com/talkingbook/products.nsf/pages/Scholar\\_Digital\\_Talking\\_book](http://www.telex.com/talkingbook/products.nsf/pages/Scholar_Digital_Talking_book)

(Note: One software package available for creating DAISY format audio files from a variety of sources is **eClipseWriter**. More information is available at: <http://www.irti.net/> .)

## **E-book players**

E-book players, like the Book Courier Portable Player, are a type of MP3 player that also play files from some or all of the following sources: Bookshare.org, Kurzweil Educational Systems and Audible.com

Book Courier Portable Player (MSRP \$379.00)

<http://www.bookcourier.com/>

---

## **Amplification Devices**

### **Wired**

Wired amplification devices usually consist of one, small handheld/pocket held/belt worn unit with an earpiece and a microphone. The unit may have on/off switch and a volume control. Some units come with a detachable microphone and an extension cord allowing the microphone to be remotely located (such as on an instructor's desk or in front of TV speakers for telecourses or information highway courses) instead of being attached directly to the unit.

Pocket Talker Pro (MSRP: \$184.00)

Williams Sound

[http://www.williamssound.com/productdetail.aspx?product\\_id=92](http://www.williamssound.com/productdetail.aspx?product_id=92)

### **Wireless**

Wireless units are composed of two separate units: the transmitter unit which has the microphone and a receiver unit which has the earpiece. Sounds are picked up by the microphone (usually worn by the instructor or speaker) and carried to the transmitter. The transmitter broadcast the sound signal by radio to the receiver (worn by the student/listener). The receiver extracts the sound, amplifies it, and sends it to the earpiece.

Wireless systems that support channels must have the transmitter and receiver set to the same channel to operate properly. Having channels also allow users within range of each other to use different channels so each user will not pick up the transmissions of the other users. Users may also receive the transmissions from broadcasting public address (P.A.) systems (found in some auditoriums) by setting their receivers to the channel of the P.A. system.

Listen FM System LS-05 (MSRP: \$680.43)

Listen Technologies Corporation

[http://www.listentech.com/products/LS-05\\_overview.php](http://www.listentech.com/products/LS-05_overview.php)

---

### **Troubleshooting amplification devices**

A simple operational test is to turn the unit on and, with microphone and earphones plugged in, wave the earphones in front of the microphone. If the unit is working properly a high-pitched squeal should be heard. If not, the following questions should be answered:

- Are the batteries good?
- Is the unit turned on?
- Is the volume high enough?
- Are the microphone and earphones good and are they plugged in?
- Additionally for wireless systems: do the channels match on the receiver and transmitter?

## Book Scanning

(Note: Book scanning takes much time and effort. Check with e-text/audio book sources for the availability books in electronic format before devoting resources to scanning and converting a book. Sources include: publishers, **Reading for the Blind & Dyslexic** for regular and custom recording, N.C. State Library for the Blind, and [www.bookshare.org](http://www.bookshare.org). For Braille and large print, consult The American Printing House for the Blind and The Louis Database.)

Students who can't read, either due to reading disability, low vision or blindness, have to resort to either having books read to them or may have to obtain books in electronic format in the form of audio tapes, CDs or electronic text such as Word or text files, that can be read by PC using a screen reader. Sometimes the needed books are not available in electronic format, and/or the department's budget may not support paying for a reader for the student. It may become necessary to manually convert the book into electronic format if this is the student's preferred format.

(Warning: most books are copyrighted and should not be copied or converted without the consent of the publishers. Contact the publishers to find out their copyright policy. Some publishers allow schools to convert books to e-text and issue the e-text to students with appropriate disabilities, and appropriate accommodation paperwork provided that the school obtains the signature of the student on a copy of the publisher's permission form. Other publishers require individual permission requests for each student. The student is also usually required to purchase and trade the hardbound book for the e-text version of the book. The books are traded back at the end of the semester.)

The process of converting a hardbound book into electronic format, commonly known as e-text, involves following steps:

1. Scanning the book into a PC using a scanner.
2. Using OCR (Optical Character Recognition) software to convert the scanned pages in to text. (ABBYY FineReader, OmniPage, TextBridge Pro, etc.)
3. Manually editing the converted text to correct any errors that occurred in step two.

Small documents can be scanned using a standard flatbed scanner (scan a page, scan the facing page, turn the page, etc.). Larger documents such as books can be scanned using this method, but the process is very labor-intensive and time consuming. A better method is to use a duplex scanner.

The duplex scanner allows for pages to be stacked in its feeder tray and fed, one sheet at a time, through its scanning head, where both sides of the sheets are scanned simultaneously. This automated process is usually quick and much less tedious than manual scanning.

There are two main drawbacks to duplex scanning: duplex scanners are expensive, and the spine of the book to be scanned must be sheared off of the book to allow for the loose pages to be fed through the scanner. The expense of the scanner should be more than offset by the savings of not having to pay an employee to manually scan a book and by the savings in time. The "destruction" of the book may be appalling to some people, but keep in mind that only one book needs to be sheared. If the book happens to be the student's book, it can be three-hole punched and placed in a three ring binder. (Most students find a book in a three ring binder easier to use than a regular bound book.)

The following is the general procedure for duplex scanning and converting a book:

(Note: Detailed information for hardware or software not covered in this document may be found by reading the associated user's manual.)

### **Shear the book**

The spine of the book may be cut off manually by breaking the book into smaller sections and then **carefully** cutting the spine off each section using a case cutter or a heavy Exacto knife. A better way is to make use of either the school's print shop or machine shop (if available). These shops usually have a large device known as a shear that may be used to cut the spine off the book quickly and neatly.

### **Adjust the scanner**

(Note: If the duplex scanner is not connected to a PC, contact the school's IT department. Some scanners connect using a USB connector and are easy for the novice to hook up while other scanners may use a SCSI connector, which requires the addition of a SCSI interface card in the computer. Scanning software and OCR software come with most scanners and will need to be installed if not already on the PC.)

Start the software for the duplex scanner. Pick several typical pages from the book, place them in the scanner's feeder, and click scan in the scanner software to run the

pages through the scanner. Observe the images of the scanned pages, making sure of adequate contrast. (OCR software must have a high contrast images to be able to recognize the text; low contrast between the text and background will result in errors in conversion or even missed words.) Save the scanned page files then test the contrast of the scanned pages by running the files through the OCR software. If the resulting text has errors or missing text, the contrast may be too low. Find and raise the contrast setting in the scanning software. Repeat the OCR test with the scanned files and adjust contrast in the scanning software until accurate results are obtained. Some books have colored backgrounds behind the text, making it difficult for the OCR software to accurately see the text. Some OCR software has a setting, known as **dynamic threshold**, which can be turned on to improve the accuracy of text on the colored background.

### **Scan the book**

Choose a section of the book to be scanned such as the cover, the contents, or a chapter. (Scanning the book in sections will result in several smaller files rather than one huge file. These files will be easier to manage during the editing phase and during the reading phase when the e-book is finished.) Stack the pages in the duplex scanner's feeder, making sure not to exceed the feeder's maximum number of pages, and click scan in the scanner software. When the last page has been scanned, save the resulting images with an appropriate name, such as "Chapter 1", in an appropriately named folder. Repeat the scanning process for the rest of the book.

### **Convert the scanned pages into text**

(Note: some scanner software can be configured to automatically run the scanned image files through the OCR software.)

If necessary, start the OCR software then configure the settings for the type of e-text file to convert the scanned file into. (File types include .doc for Word files, .txt for plain text files, and .rtf for Rich Text Files.) Choose the previously scanned file (usually **File** menu -> **Open**, then **Browse**) then choose the "convert" option. After several seconds, scanned file should be converted into the chosen text file type. Create an appropriately named folder and store the converted files there. Repeat the conversion process for the rest of the scanned files of the book.

## **Edit the E-text**

This is probably the most tedious and time-consuming stage of the process. It involves opening the converted e-text in the appropriate program (such as Microsoft Word, Notepad, or WordPad) and proofreading the e-text while referring to the original text. A word processor such as Microsoft Word is recommended for this process in order to use the word processor's spell check and grammar check features. These features simplify the process of proofreading by underlining obvious errors.

## **Copy e-text to media**

The finished e-book files should be stored in at least two locations. One location should be where the working files will be accessed, such as a local PC or a remote server. The other location is for storing a backup of the e-book (in case the first copy gets corrupted). The backup copy should not be stored in the same location as the working copy. The backup copy may be stored on a server, a separate PC, or storage medium such as CD, DVD or flash drive.

## **Optional conversion of e-text to Daisy format (<http://www.daisy.org/>)**

The converted e-book is now ready to be issued to the student or an additional step can be taken to convert the e-book into Daisy digital talking book format. This can be done using conversion software such as **eclipseWriter** from I.R.T.I.

eclipseWriter – Personal Edition (MSRP \$249.95)  
by I.R.T.I.

<http://www.irti.net/eclipse/eclipseWriter/main.html>

## **Issue the e-book**

Make sure the student understands the restrictions placed on having this e-book (the student will not alter e-text or allow anyone else to have a copy of the text). Then have the student sign the publisher's permission form. These forms should be kept on record as proof of permission for the student to have copyrighted material. Place a copy of the e-book on the desired medium (CD, flash drive, etc.) and trade the medium for the student's regular book. (Students should "trade back" at the end of the semester.) CDs should be appropriately labeled and stored in a CD jewel box. If necessary, instruct the student in the use of **e-text readers**. (See section on **E-text Readers**.)

Fujitsu fi-5530C Duplex Scanner (MSRP \$2699.99)

<http://www.pcmall.com/pcmall/shop/detail.asp?dpno=684942>

<http://www.fujitsu.com/us/services/computing/peripherals/scanners/>

*OCR Software*

*ABBYY FineReader 8.0 Professional Edition (MSRP \$399.99)*

<http://www.abbyy.com/finereader8/?param=44890>

OmniPage 15 Standard (MSRP \$149.99)

OmniPage Professional 15 (MSRP \$499.99)

<http://www.nuance.com/omnipage/>

---

## **E-book libraries and E-book Sharing**

Some colleges have libraries of e-books that are available to be shared with other colleges. Some offer access to the library for free provided the borrowing college agrees to contribute e-texts that they have produced to the library.

Alternate Media Exchange Database

<http://www.amxdb.net/>

## **Note taking devices**

### **NEO and Dana Wireless**

Both of these devices are small, portable word processors. They allow a student to quietly take notes in class or type up homework with out the expense of a laptop computer. Once documents are composed, they may be transferred to a PC using a USB cable (NEO) or wirelessly (Dana).

NEO (MSRP \$249) and Dana Wireless (MSRP \$429)

AlphaSmart

<http://www.alphasmart.com/products/index.html>

---

### **TypeWell**

The TypeWell software installs on two PCs (usually two laptops) allowing a specially trained transcriber to type class notes on one PC while a hard of hearing/deaf student reads the notes relayed to the second PC. The student may also type questions on the second PC back to the transcriber to be relayed to the instructor. All notes and chat sessions can be save and printed out.

**TypeWell** (Contact TypeWell for pricing)

<http://www.typewell.com/>

---

### **NCR note taking paper**

NCR (No Carbon Required) paper consists of two or more layers of pressure sensitive paper that allows a note taker to produce multiple copies of notes by writing only once.

Note: Ruled NCR note paper is expensive. Having the school's print shop to print lines on blank NCR paper is much less expensive.

---

# Screen/Text readers

A screen or text reader is a program that converts the text shown on a computer display into audible speech using the computer's sound card. People that may benefit by using screen readers include people with learning disabilities, people with low or no vision, and people learning English as second language. Screen reading software allows a person to be independent of a human reader.

## Kurzweil 3000

### **Kurzweil 3000 Professional Color** (MSRP \$1495)

Kurzweil Educational Systems

<http://www.kurzweiledu.com/>

### Summary

**Kurzweil 3000 Professional Color** allows the user to scan any text into the computer and then have the text read aloud by the computer using a synthesized voice. The user may also use **Kurzweil** to read text or Word files and may even use it to read web pages.

### Using

When **Kurzweil** is started, users have the option of selecting an existing account or creating a new account. These accounts store the users' custom settings. (New users will probably want to create a new account.)

Most users will only want to use the basic functionality of **Kurzweil 3000**. This involves placing printed text (book, magazine, handout, etc.) in the scanner and pressing Kurzweil's **Scan** button (Picture of Scanner in the tool bar). Text can be placed in the scanner upside down with no problem as Kurzweil will automatically turn the scanned text right-side-up.

The user may scan in and read one-page a time, which may be inconvenient when reading multi-page documents. Clicking on the Scan menu and selecting **Scan Repeatedly** will cause a Message Box to pop up showing a 10 second countdown until the next scan and a button that labeled **Done**. This 10 second delay allows

enough time for the user to position the text in the scanner. The text will be scanned, then a Message Box with the 10 second countdown will pop up again. When the last page is scanned the user may click the **Done** button in the Message Box to stop scanning.

Once the page or pages are scanned in, the user may press Kurzweil's **Read** button (Green triangle in the tool bar) to have scanned text read aloud. The user may adjust the read speed with the **up** and **down** arrows (to the left of the box labeled “WPM”) to select the read rate in **words per minute**. The user may also adjust the size of the displayed page with the text size adjust arrows next to the box labeled “**Zoom**”.

Some users may not like the default voice used by Kurzweil; it sounds very mechanical and robotic. Users may change the voice used by Kurzweil by a clicking on the **TOOLS** menu then clicking **Options**. Click the **Reading** tab and in the **Speaker** section select the desired voice from the **Speaker** pull-down menu. Press the **Test Speech** button to hear the selected voice.

Normally Kurzweil will read columns of text in the same way that newspapers and magazine articles are read. Occasionally it will be necessary to override reading columns, such as when trying to read a list of words on the left side with the definitions of the words on the right side of the page. The user can change the way in which Kurzweil reads the text by changing the reading zones with **Tools** menu -- > **Edit Zones**. The user may then delete the old zones and add the desired new zone or zones by dragging a box around the desired text. When done editing the new zones the user will exit zone editing with **Tools** menu -- > **Edit Zones**.

### **Dictionary, Syllables and Spelling**

Use the **Dictionary**, **Syllable**, and **Spelling** features by double-clicking on the desired word (the word will be highlighted), and then clicking on the appropriate button. A window will pop up showing the word and its definition, syllables or spelling. Pressing the **Read** button will cause the word and definition, syllables or spelling to be read.

### **Testing**

Students will occasionally need to use Kurzweil to take a test. If the test involves definitions, it may be necessary to turn off **Kurzweil's** dictionary. To do this, click on the **Tools** menu, select **Options**, and click on the **Lock Features** tab. Under the section labeled **Reference Tools**, make sure that the option called **Dictionary Enabled** is unchecked. If the test involves synonyms make sure the **Synonyms**

**Enabled** checkbox is unchecked. Check of the **Password-protected Features** checkbox and enter a password. This feature requires that anyone attempting to change any locked features to enter the appropriate password.

## **Highlighting**

Just as highlighters may be used to mark important passages in a regular book, the same function may be performed in **Kurzweil** with the **Highlighter** tools. The **Highlighter** tools, when active, shows up in the tool bar as green and yellow high lighters. If the **Highlighter** tools are not visible, activate the highlighters by right-clicking on an empty space on the toolbar, going down to **Apply Toolbar Set** and selecting **Content Reading**. (This should be option 2.) The highlighted text may be saved to a file by clicking **File**, then **Extract, Highlights**. A window with only the highlighted text will pop up. Click **File – Save As** then pick a folder then a file name to save the extracted text.

## **Problems**

### **Text with Colored Background**

The contrast level between text and colored background sometimes is too low for **Kurzweil** to accurately recognize the text. To compensate for this, turn on the dynamic threshold option. To do this click the **Tools** menu, go to **Options**, and select the **Scanning** tab. The section in the lower half the window, called **Extras**, contains an option called **Dynamic Threshold**. Make sure this option is checked.

### **Highlighted Text**

Text that has been highlighted may not be visible to the scanner. The highlighted areas may show up as black with the text being obscured by the highlighting. Highlighter colors known to cause this problem are pink, and sometimes green and blue. Most text highlighted in yellow is readable by the scanner.

### **Improper Document Placement on Scanner**

If the book is placed in the scanner and the page to be scanned is not completely flat on the scan bed, the text near the spine of the book may not get scanned properly. Apply gentle pressure to the spine of the book to make sure the entire page is flat on the scan bed. **\*\* Warning! Too much pressure may damage the scanner. \*\***

If the page adjacent to the one being scanned from a book is on the scan bed, some of the text on that page may be scanned. To eliminate this unwanted text, position the book so that the adjacent page is not on the scan bed or temporarily tape a blank sheet of paper to the scan bed so that only the desired page is seen by the scanner.

**Kurzweil 3000 Professional Color** is available in a network edition. This allows a user to use the software from any properly configured computer connected to the network without having to go to a specific computer.

### **Kurzweil 3000 LearnStation (MSRP \$395)**

Kurzweil Educational Systems  
<http://www.kurzweiledu.com/>

**Kurzweil 3000 LearnStation** has the same read capability of the **Professional Color** version but can not perform the scan function; it only reads text already in electronic format, such as **.doc**, **.rtf** and **.txt** files. Users may use a scanner to scan text into the computer and then use optical character recognition (OCR) software, such as **OmiPage Pro** or **Abby Fine Reader** to convert the scanned text into editable and readable text. (Most scanners come with some form of OCR software.) The user should save the converted text file and then open the file in Kurzweil for reading. (**File** menu, **Open**, then browse to the desired file.)

**Kurzweil 3000 LearnStation** is available in a network edition.

---

## **Scan and Read Pro (MSRP \$149.95)**

By Premier Assistive Technology

[http://www.premier-programming.com/snrp/SNR\\_PRO.htm](http://www.premier-programming.com/snrp/SNR_PRO.htm)

(Tutorial videos are available at the above link. Look on the right-hand side of the page.)

The basic operation **Scan and Read Pro** is the same as that of **Kurzweil 3000 Read Station**; the user places the desired text in the scanner, presses the **Scan** button (picture of a scanner) in the toolbar and after the text is scanned presses the **Read** button (mouth) to have the scanned text read aloud. **Scan and Read Pro** does not have some of **Kurzweil 3000 Scan Station's** advanced features such as highlighting.

When using **Scan and Read Pro** for the first time it may be necessary to select the scanner used by the computer. Do this by clicking the **Scan** menu, clicking the **Select Scanner** option and selecting the attach scanner from the displayed list.

Users may change the default voice used by **Scan and Read Pro** right clicking on the **Voice** button (picture of microphone) and selecting the desired voice. The user may also adjust the reading speed by sliding the **Voice Rate** slider to the right to increase the reading speed and to the left to decrease the speed. The pitch of the voice may be adjusted by using the **Voice Pitch** slider.

(**Scan and Read Pro** is included on the **Key to Access** device.)

---

### **ReadPlease (Free version available for download)**

By ReadPlease

<http://www.readplease.com/>

**ReadPlease**, much like **Kurzweil 3000 LearnStation**, does not scan text into the computer. **ReadPlease** only reads text already in electronic form. It is up to the user to scan and convert any hard copy text.

In order to read e-text, the user can open the e-text with **ReadPlease**. Clicking the **Play** button (green triangle on the left-hand side of the window) will cause **ReadPlease** to read the e-text. E-text may then be selected by highlighting, copied, and then pasted into the text region of **ReadPlease** for reading.

**ReadPlease** has variable reading speed controls and an option for low vision color.

### **ReadPlease Plus 2003 (MSRP \$59.00)**

By ReadPlease

<http://www.readplease.com/>

**ReadPlease Plus 2003** has all the features of **ReadPlease** plus several additional features such as text highlighting while reading and the ability to add custom words and pronunciations.

---

# Microsoft Narrator (Included with Windows 2000 and XP)

Microsoft

<http://www.microsoft.com/enable/training/windowsxp/usingnarrator.aspx>

Microsoft **Narrator** is a basic screen reader mainly designed to work with the Windows operating system and some of its programs, such as **Notepad**, **WordPad**, **Internet Explorer** and the **Windows Desktop**. It may not work accurately with third-party (non-Microsoft) programs therefore the user may want to obtain specialized screen reading software.

**Narrator** may be started by pressing the **Windows logo key + U**. (On keyboards without a **Windows logo key**, use **Ctrl + Esc + U**.) It may also be started by clicking **Start**, pointing to **Programs, Accessories, Accessibility**, and then selecting **Narrator**.

The **Narrator** voice may be adjusted by clicking on the **Voice** button in the **Narrator** dialog box, or by pressing the **V** key on the keyboard, and then clicking on the left or right arrows to increase or decrease the **Speed, Volume** and **Pitch** to the desired setting. The user may select **Speed** from the keyboard by pressing **Alt + T**, the **Volume** by clicking **Alt + O**, or the **Pitch** by clicking **Alt + P**. Once selected the setting may be adjusted with the up and down arrows on the keyboard.

**Narrator** may be turned off by clicking the **Exit** button in the **Narrator dialog box** and then clicking **Yes**.

---

## JAWS (MSRP \$895 - \$1495)

Freedom Scientific

<http://www.freedomscientific.com/>

[http://www.freedomscientific.com/fs\\_products/JAWS\\_HQ.asp](http://www.freedomscientific.com/fs_products/JAWS_HQ.asp)

**JAWS** is screen reader software that was designed to allow **blind** or **low vision** people to use a computer and navigate the Internet without using a mouse. **JAWS** reads the on screen text and allows the user to navigate using keyboard commands.

## Using **JAWS**

(Note: New users not proficient at touch typing with a standard keyboard may want to apply Braille overlays to the keys. One source for these overlays is at: <http://www.maxiaids.com/> . Search for Braille overlays.)

Freedom Scientific has training materials and documentation available online. The links are listed below.

For those wishing to get started quickly with JAWS, a list of basic JAWS keystrokes is available at:

[http://www.freedomscientific.com/Training/training\\_Basic\\_JAWS\\_Keystrokes.asp](http://www.freedomscientific.com/Training/training_Basic_JAWS_Keystrokes.asp)

**JAWS** basic training is available in **text**, **MP3** or **DAISY** formats at:

[http://www.freedomscientific.com/Training/JAWS\\_training\\_hq.asp](http://www.freedomscientific.com/Training/JAWS_training_hq.asp) .

JAWS 7.0 Documentation:

[http://www.freedomscientific.com/fs\\_support/doc\\_screenreaders.asp](http://www.freedomscientific.com/fs_support/doc_screenreaders.asp)

**JAWS** may be installed to a **USB flash drive** and used on a computer that has the appropriate **JAWS** license on it. Detailed instructions for this feature are available at [http://www.freedomscientific.com/fs\\_products/JAWSforUSBDrives.asp](http://www.freedomscientific.com/fs_products/JAWSforUSBDrives.asp).

Web pages must be W3C compliant for screen readers to read them properly. Resources for developing compliant web pages can be found on the NC-VITAL web site:

<http://www.ncvital.info/design.htm>

---

## **JAWS Compatible Refreshable Braille Displays**

Refreshable Braille displays are devices that connect to a computer and display Braille characters on their surfaces through the use of small extendable pins. They display one or two rows of Braille characters usually between 20 and 80 characters wide. These devices are usually connected to a PC to allow a blind or low vision person to read the contents of the computer screen. Several types of refreshable Braille displays are available from Freedom Scientific.

(Note: According to Freedom Scientific's web site, these devices are  
**“Available on GSA Schedule, contract number GS-35F-0330J.”**)

Focus 40 (\$3,495)

Focus 80 (\$6,995)

Freedom Scientific

[http://www.freedomscientific.com/fs\\_products/displays\\_focus40-80.asp](http://www.freedomscientific.com/fs_products/displays_focus40-80.asp)

PAC Mate 20-cell Portable Braille Display (\$1,400)

PAC Mate 40-cell Portable Braille Display (\$3,200)

[http://www.freedomscientific.com/fs\\_products/PACmate\\_20.asp](http://www.freedomscientific.com/fs_products/PACmate_20.asp)

## **TTY and Relay Services**

### **TTY (TeleTYpe)**

A TTY is a device with a keyboard and text display that connects to a phone line or the handset of a phone and allows a user (deaf, hard of hearing, or speech impaired) to communicate with other TTY users. The messages typed on one TTY unit by one user are shown on the display of the TTY unit of the other user.

### **Relay Services**

Relay Services, offered by major phone companies, involves a person (Communication Assistant or CA) acting as a “relay” or repeater between two people using two different communication methods, such as TTY and voice. (In this case, the voice user talks to the Communication Assistant; the CA uses TTY to communicate with the TTY user.)

There are several other types of communications methods that can be used with Relay Services:

**Voice Carry-Over (VCO)** – Allows a user to use voice to talk and use TTY to receive.

**Hearing Carry-Over (HCO)** – The user listens to voice of the other party and communicates with the CA using TTY. The CA voices the TTY message to the other party.

**Speech-To-Speech Service (STS)** – A user with a speech impediment talks to a CA; the CA re-voices the message the other party.

**Video Relay Services (VRS)** – Video of a user using sign language is relayed to an interpreter. The interpreter voices the message to the other party.

More information is available at: <http://www.ncvital.info/aids/hcomm.htm>

## Visual Devices and Software

Visual devices and software aid individuals with visual impairments. The devices may be as simple as magnifying glasses or as complicated as a TV camera system. Some of the software is built into operating systems such as Windows, while other software must be purchased from third-party vendors.

### Windows Accessibility Tools

Users may use these tools to change the display settings on a Windows PC to allow for easier viewing. They may increase the size of fonts used, change the color combinations used on the screen and may change the contrast of the screen. Users may also activate the **Magnifier** program to enlarge portions of the screen. (In Windows click **Start – Programs – Accessories – Accessibility – Magnifier.**) Press **F1** on the keyboard of a Windows PC and search for **Accessibility Wizard** for more information.

### Third-party Software

This type of software is used to magnify the image shown on a computer display. Magnification usually ranges from 1.5 times magnification up to 32 times. When the screen is magnified, the user only sees a portion of the whole screen and must scroll the image around in order to see the complete display.

ZoomText Magnifier (\$395)

Ai Squared

<http://www.aisquared.com/Products/index.cfm>

Other links to screen magnification software is available on the NC-VITAL website:

<http://www.ncvital.info/aids/vcompaccess.htm>

### CCTV

A closed-circuit television (CCTV) device consists of a small video camera coupled to a large display screen (television or PC monitor). For reading text, the camera is pointed downward towards a flat, lighted, movable X-Y table. Text is placed on the table, viewed by the camera, magnified and displayed on a television or, with a

switching unit, on a computer monitor. Most units have controls to allow the user to adjust the magnification, brightness, and contrast of the image. Some units also allow the user to change the display between color and black-and-white and to negate the image (black and white are reversed). The user may move the table left, right, and foreword or backward in order to read the text on the display.

Another type of CCTV may be used to view and magnify the whiteboard in a classroom. One style sits on the student's desk and uses a PC for its display. A second style is a head set worn like a pair of goggles (Jordy) with the display built in to the unit.

Links to CCTV related assistive technology may be found on the NC-Vital web site:

<http://www.ncvital.info/aids/vemagni.htm>

### **Handheld LCD magnifiers**

These devices are similar to CCTV devices in that they have a camera coupled to a display, but these devices are smaller and self-contained. These magnifiers are usually placed directly on the text and the magnified image of the text viewed on the top of the unit.

Pico and  
Olympia  
by Telesensory

<http://www.telesensory.com/products2-1.html>

Amigo  
by Enhanced Vision

[http://www.enhancedvision.com/amigo\\_family.php](http://www.enhancedvision.com/amigo_family.php)

More links to vision related assistive technology may be found on the NC-Vital web site:

<http://www.ncvital.info/aids/vision.htm>

## Miscellaneous

This section covers the following:

1. Making a personal settings floppy disk using the Accessibility Wizard
2. Configuring a left-handed mouse
3. Using a Flash Drive
4. Key to Access
5. Using Kurzweil to convert text to a portable audio file (.mp3, .wav)
6. Burning a CD
7. Setting Up a Free Yahoo E-Mail Account
8. Keyboard shortcuts and mouse methods
9. Data Loss Prevention
10. Free Anti-Spyware and Anti-Virus Software
11. Computer Related Terminology
12. Improvised Solutions
13. Solutions for the blind
14. Dragon Audio Mining
15. Magpie

---

### Making a personal settings floppy disk using the Accessibility Wizard

The **Accessibility Wizard** guides the user through the process of customizing a computer with tools designed to help meet vision, hearing, or mobility needs. Accessibility options (such as [StickyKeys](#), [ShowSounds](#), and [Mousekeys](#)) help users with disabilities to make full use of the computer. Some of the options, such as **MouseKeys**, may be of interest to all users. Once the Accessibility tools are set up, they can be accessed through **Control Panel** and the **Accessibility** menu.

Open the [Accessibility Wizard](#) by clicking **Start**, point to **Programs**, point to **Accessories**, point to **Accessibility**, and then click **Accessibility Wizard**. Create a default setup file by making a change to a setting and then changing it back to what it was. Click “**Next**” until asked to save the personal setting file. Browse to an appropriate location to store the default settings file (usually a floppy disk or a flash drive) and save the file with the name “Default”. (This file can be used to change revert the computer back to its original settings as a courtesy to the next user.)

Re-enter the **Accessibility Wizard** and make necessary adjustments to each setting before clicking “**Next**” to go to the next setting. Once again, click “**Next**” until asked to save the personal setting file. Browse to an appropriate location to store the default settings file (usually a floppy disk or a flash drive) and save the file with the name “My Settings”.

The disk may be used by inserting it in a computer, double-clicking the “My Computer” icon, and double-clicking the “3½ Floppy” icon. Double-click the “My Settings” file to configure the computer to the new settings. Double-click the “Default” file to set the computer back to the old settings.

Note: The accessibility tools that ship with Windows are intended to provide a minimum level of functionality for users with special needs. Most users with disabilities may need utility programs with more advanced functionality for daily use.

---

## Configuring a left-handed mouse

To reverse your mouse buttons:

1. Open **Mouse** in **Control Panel**.
2. Open the mouse settings by clicking **Start**, then point to **Settings**, click **Control Panel**, and then double-click **Mouse**.
3. On the **Buttons** tab, under **Button configuration**, select the **Switch primary and secondary buttons** check box to make the right button the primary mouse button. Clear the check box if you want the left button to be the primary mouse button.

Note: If the mouse buttons were switched using the left mouse button, they will have to be switched back using the right mouse button.

---

## Using a Flash Drive

Flash drives (also known as thumb drives or pen drives) are data storage devices, like floppy disks, and come in different memory sizes ranging from 32 MB (Megabytes) up to 4 GB (Gigabytes). A typical size is 128 MB. A flash drive of this size has the storage capacity of about 88 floppy disks.

The flash drive can be accessed by plugging it into the USB port on a PC (a green arrow on a small box should appear in the system tray on the bottom-right of the screen within 15 or 20 seconds) then opening the File Explorer (right-click “Start” button then click “Explore”) or by double-clicking the “My Computer” icon. The flash drive should be listed as either “Removable drive” (for Windows 2000) or listed by its brand name (for example, “Lexar Media” for Jumpdrives on Windows XP).

(Note: do not confuse the flash “Removable drive” with the Zip disk “Removable drive” installed on some computers.) Files can be saved to or opened from the drive the same way they can be on or from a floppy. Some units even have a write-protect switch.

When finished using the drive, be sure to click on the green arrow in the System Tray (bottom-right of the screen) then click “Safely remove USB mass storage device” (Windows XP) or “Stop USB device” (Windows 2000). **WARNING: Failure to do this may result in loss of data.** The drive may be removed after the computer displays that it is safe to remove hardware.

---

## Key to Access

Key to Access is a combination MP3 player and flash drive. As a flash drive, it can store data files (such as Word documents, spread sheets, MP3 music files, etc.) and programs. It comes with eight

different assistive programs: Scan and Read Pro, Universal Reader Plus, E-Text Reader, Ultimate Talking Dictionary, Talking Word Processor, PDF Magic, Text To Audio, Talking Calculator. This device allows the user to use its software by clicking on an icon on a tool bar that pops up after plugging the device into the USB port on a PC. This frees the user from having to use a specific computer with assistive software.

Key to Access (MSRP \$349.95)

Premier Assistive Technology

<http://www.premier-programming.com/keytoAccess/Key.htm>

---

## Using Kurzweil to convert text to a portable audio file (.mp3)

Kurzweil reads text that is scanned in and can also save the reading as an audio file. A user can then play the audio file on any PC with Window Media Player or any other compatible player.

Use the following steps to create the audio file:

1. Scan the text into Kurzweil
2. On the menu click “File”, “Audio Files”, then “Create Audio File...”
3. On the settings box that pops up select (use the default settings if you are not sure):
  - a. how much of the document you want converted to an audio file
  - b. the type of voice and reading speed
  - c. the Output File:
    - i. Format
    - ii. Quality
    - iii. and File Name
4. Click “OK”

The file will be saved by default in:

**C:\Documents and Settings\All Users\Application Data\KESI\Output Audio\.**

The file can then be copied to a flash drive, burned to a CD, or uploaded to an MP3 player.

---

## Burning a CD Using Nero v 6.3.0.2

Start Nero.

Click the CD tab for burning a CD.

Click the Data icon (looks like a sheet of paper).

Click “Make Data Disk”.

When the “Disk Content” window pops up:

Click the “Add” button.

Browse to and select the files to be burned and click the “Add” button.

When done adding files, click then “Finished” button.

Click the “Next” button.

When the “Final Burn Settings” window appears:

Select the “Current recorder:” (This is usually the D: or E: drive.)

Optional: Name the disc in the “Disc name:” text box.

Check the box beside “verify data on disc after burning”.

Click burn.

The disc will be burned, then the disc tray will eject and retract for the verification process.

A message box should appear stating the number of times buffer underrun was avoided. Click the “OK” button.

A message box should appear stating “Burn process completed successfully at 48x (7,200 KB/s).” (The numbers will be different with a faster or slower burn speed.) Click the “OK” button.

A window should appear asking:

“What do you want to do now?”

Burn same project again

Cover Designer

Save project”

Click the “Exit” button to return to the main screen.

Click the power button (red button with a 1 inside a 0) to quit Nero.

---

## Setting Up a Free Yahoo E-Mail Account

1. Start Internet Explorer and go to **www.yahoo.com**.
  2. Click the Mail icon.
  3. Click the “Sign Up” link.
  4. Fill out all information fields with an \* beside them.
  5. Read the code in the “Verify Your Registration” section and enter the code in the box beside “\* Enter the code shown:”
  6. Read the “Terms of Service”. If acceptable, click the “I agree” button.
  7. Correct any errors in the form. When corrected click “Submit”.
  8. Registration is complete. Continue to the newly created account.
- 

## Windows Keyboard shortcuts and mouse methods

<F1>	Help
<Shift + arrow key>	Select text
<Control + a>	Select all text
<Control + c>	Copy text
<Control + v>	Paste text
<Control + x>	Cut text
<Tab key>	Move cursor to next field or box
<Control + Right arrow>	Move a word at a time to the right
<Control + Left arrow>	Move a word at a time to the left
<Page Up>	Move up one page or screen
<Page Down>	Move down one page or screen
<Home>	Move to the beginning of the line
<End>	Move to the end of the line
<Print scrn>	Capture a picture of the whole screen to the clip board.
<Alt + Print scrn>	Capture a picture of the currently active window

<Alt-F4>                      Close a window

Menus may be opened by pressing <Alt> + the underlined letter in the menu name.

For example: <Alt + f> opens the File menu.

Use scroll bars more effectively by:

    grabbing the slider and moving it to the desired location

    or

    clicking above or below the slider to scroll the screen one-page in time.

These methods are much quicker than using the up or down arrows at the top and bottom of the scroll bar.

---

## **Data Loss Prevention**

- Save a copy important work on a backup disk or disks.
  - Self E-mail copies of work.
  - Print out important work. (Text can be scanned into a PC and converted back into editable text using **OCR** software.
  - Never eject a floppy disk or Zip disk while the drive light is on.
  - Never remove a flash drive without first stopping the drive.  
(See “**Use a Flash Drive**” above.)
- 

## **Free Anti-Spyware and Anti-Virus Software**

Computer viruses can damage or destroy files on a computer. Ad-ware, software that installs pop-up ads along with invisible snooping programs, usually doesn't hurt data but can slow down a computer to the point of the computer becoming unusable.

Free Virus Scanner

    AVG from <http://www.grisoft.com>

Free AdWare Scanners

    SpyBot – Search and Destroy from

<http://www.safer-networking.org/en/index.html>

    AdAware from <http://www.lavasoftusa.com/software/adaware/>

---

# Computer Related Terminology

(to aid with communicating with the IT department)

**OCR** – Optical Character Recognition software. Converts scanned text into e-text.

**e-text** – Electronic text, such as a Word document.

**Install** – to put software on a computer’s hard drive so that it may be run on the computer.

**Copy** – to duplicate a file, usually to a different storage medium (from a floppy to a computer’s hard drive).

**Move** – to transfer a file from one location to another. The file is deleted from the old location.

**Download** – to retrieve a file from a remote computer. (Downloading is **NOT** copying a file from a floppy or installing a program.)

**Upload** – to send a file to a remote computer.

**Burn a CD** – to record data to a CD-R (a recordable CD)

**Boot** – to start a computer from a powered off state. (Also known as a “cold boot”.)

**Reboot** – to restart a computer without turning it off. (Also known as a “warm boot”.)

**Start/Launch/Run/Execute a program** – to make a program go, usually by double-clicking its icon.

**LCD** – Liquid Crystal Display (NOT an LCD Display.)

**NIC** – Network Interface Card (NOT a NIC Card)

**Ethernet cable** – the cable that plugs into a computer’s NIC and runs the network socket on the wall. (It looks like a thick phone cable.)

---

## Improvised Solutions

Sometimes it is possible to find solutions using a bit of creativity. The following are such examples:

### Low Tech Solutions

#### Big fingers, small keyboard

A gentleman needed to take a typing class but his fingers were so large that he could not hit one key at a time when he typed on a standard keyboard. He had also lost the tip of one of his index fingers. To compensate for the shortened index finger, he was equipped with a rubber finger cot stuffed with cotton (to firm up the tip of the cot). This coupled with a large-key keyboard allowed him to take his typing class.

## **“It hurts when I do that!”**

A lady, who was a former transcriptionist, had a condition that caused the muscles on one side of her neck to contract, which pulled her head to one side and caused her pain. She could hold her head straight if she put one hand against her cheek, but this would force her to type one-handed. One solution was to give her a half-QWERTY keyboard which would allow her to type one-handed but would have slowed her typing speed and would have required training and practice. She occasionally nestled a 20 oz. water bottle between her cheek and shoulder in place of her hand to allow her to use both hands to type. After this fact was discovered, several different sizes of rolled foam cylinders were made by the school’s furniture division to replace her water bottle. The foam cylinders worked, allowing the lady to finish her typing class.

## **Hybrid Solution (Low Tech + High Tech)**

### **Transcription with Dragon NS**

A deaf student need to watch uncaptioned videos related to his classes. The cost of captioning the videos was around \$12,000 and no money was available to cover the cost. The narrator had a neutral accent. On of the school’s Dragon Naturally Speaking stations had been trained by a person with a neutral accent. Experimentally, the microphone from Dragon was placed between the headphones from a VCR playing the video. Dragon managed to accurately transcribe most of the narration from the video.

---

## Solutions for the blind

### Low-tech

Puff paint, spaghetti and Legos can be used as tactile aids for teaching blind students. For example: the graph used extensively in algebra can be laid out with Legos or spaghetti to allow the student to feel the graph.

### High-tech

Scientific Notebook (MSRP \$149)  
(<http://www.ncvital.info/aids/vmath.htm>)

Duxbury – Text-to-Braille software (MSRP \$595)  
Duxbury Systems  
<http://www.duxburysystems.com/products.asp>

Braille Blazer - Braille Embosser (MSRP \$1,895)  
(This is a very noisy device. A sound-proof enclosure is recommended.)  
Freedom Scientific  
[http://www.freedomscientific.com/fs\\_products/embossers\\_blazer.asp](http://www.freedomscientific.com/fs_products/embossers_blazer.asp)

View Plus – Various products  
<http://www.viewplus.com/>

---

**Dragon Audio Mining** (Contact Nuance for pricing)  
Software for creating indexed transcription from various audio sources.

Nuance  
<http://www.nuance.com/audiomining/>

---

**Magpie** (MSRP Free)  
Free authoring tool for creating accessible web-based and CD-based multimedia materials.

The CPB/WGBH National Center for Accessible Media (NCAM)  
<http://ncam.wgbh.org/webaccess/magpie/>

---





